

What is Claimed is:

1. Fluoropolymer dispersion comprising fluoropolymer particles having an average particle size of 10 to 400nm dispersed in water, said dispersion having a solids content between 5 35 and 70% by weight, said dispersion being free of fluorinated surfactant having a molecular weight of less than 1000g/mol or containing said fluorinated surfactant having a molecular weight of less than 1000g/mol in an amount of not more than 0.05% by weight based on the total weight solids of said dispersion, said dispersion further comprising a non-ionic non-fluorinated surfactant or mixture of non-ionic non-fluorinated surfactants and one or more non-fluorinated 10 anionic surfactants, characterized in that the amount and nature of said non-ionic non-fluorinated surfactant or mixture of non-ionic non-fluorinated surfactants is selected such that the VTT of said fluoropolymer dispersion is at least 26°C and that the fluoropolymer dispersion is essentially free of aromatic group containing non-ionic surfactants.
- 15 2. Fluoropolymer dispersion according to claim 1 wherein said non-ionic non-fluorinated surfactant or mixture of non-ionic non-fluorinated surfactants can be represented by the general formula:
$$R^1-O-[CH_2CH_2O]_n-[R^2O]_m-R^3 \quad (I)$$
wherein R¹ represents an aliphatic hydrocarbon group having at least 8 carbon atoms, R² 20 represents an alkylene having 3 carbon atoms, R³ represents hydrogen or a C₁-C₃ alkyl group, n has a value of 0 to 40, m has a value of 0 to 40 and the sum of n+m being at least 2.
- 25 3. Fluoropolymer dispersion according to claim 2 wherein m is 0 and wherein said non-ionic non-fluorinated surfactant or mixture of non-ionic non-fluorinated surfactants has a HLB between 11 and 16.
- 30 4. Fluoropolymer dispersion according to claim 2 wherein said fluoropolymer dispersion comprises a mixture of non-ionic non-fluorinated surfactants comprising one or more non-ionic non-fluorinated surfactants according to formula (I) wherein m is 0 and one or more non-ionic non-fluorinated surfactants according to formula (I) wherein n and m each are different from 0.

5. Fluoropolymer dispersion according to claim 2 wherein said fluoropolymer dispersion comprises one or more non-ionic non-fluorinated surfactants according to formula (I) and one or more polysorbates.

5 6. Fluoropolymer dispersion according to claim 2 wherein said fluoropolymer dispersion comprises one or more non-ionic non-fluorinated surfactants according to formula (I) and one or more ethoxylated acetylenic diols.

10 7. Fluoropolymer dispersion according to claim 6 wherein said ethoxylated acetylenic diols have an HLB between 11 and 16.

8. Fluoropolymer dispersion according to claim 1 wherein the fluoropolymer comprises polytetrafluoroethylene.

15 9. Use of fluoropolymer dispersion as defined in claim 1 in coating or impregnation of a substrate.

10. Use according to claim 9 wherein said substrate comprises metal substrates, glass fiber fabrics, polymeric substrates and paper.

20 11. Method of providing a fluoropolymer particle dispersion comprising:
25 (a) providing a fluoropolymer dispersion comprising fluoropolymer particles having an average particle size of 10 to 400nm and comprising fluorinated surfactant having a molecular weight of less than 1000g/mol or being free thereof;
(b) reducing the amount of said fluorinated surfactant in said dispersion if the amount thereof is more than 0.05% by weight based on the total weight of solids of the dispersion in the presence of a non-ionic non-fluorinated surfactant or mixture of non-ionic non-fluorinated surfactants;
(c) upconcentrating the fluoropolymer dispersion in the presence of a non-ionic non-fluorinated surfactant or mixture of non-ionic non-fluorinated surfactants so as to increase the amount of fluoropolymer solids in said dispersion to a level between 30 35% and 75% by weight; and

(d) adding one or more non-fluorinated anionic surfactants to the fluoropolymer dispersion prior to or after upconcentrating said fluoropolymer dispersion; wherein said non-ionic non-fluorinated surfactant or mixture of non-ionic non-fluorinated surfactants used in said step (b) and/or (c) are selected such that the fluoropolymer dispersion after step (d) has a VTT of at least 26°C or alternatively, further one or more non-ionic non-fluorinated surfactants are added to adjust the VTT of the fluoropolymer dispersion to at least 26°C and wherein said non-ionic non-fluorinated surfactants are selected such that the fluoropolymer dispersion is free from aromatic group containing non-ionic surfactant.

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